

STATE OF ALASKA

Jay S. Hammond, Governor



Annual Performance Report for

INVENTORY AND CATALOGING
INTERIOR ALASKA

by

*Michael Kramer, Gary Pearse, Richard Peckham
and Kenneth Alt*

ALASKA DEPARTMENT OF FISH AND GAME

James W. Brooks, Commissioner

SPORT FISH DIVISION

Rupert E. Andrews, Director

W. Michael Kaill, Chief, Sport Fish Research

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RESEARCH PROJECT SEGMENT

State: Alaska Name: Sport Fish Investigations
Project No.: F-9-8 of Alaska
Study No.: G-I Study Title: INVENTORY AND CATALOGING
Job No.: G-I-N Job Title: Inventory and Cataloging
of Interior Alaska Waters,
Chandalar River Drainage

Period Covered: July 1, 1975 to June 30, 1976

ABSTRACT

This report presents the results of the first year of investigations of waters in the Chandalar River drainage. Six lake and two stream surveys were conducted. Survey data include physical, chemical, and biological features. Access status, angler usage, and recommended management programs are also discussed. A second year of investigations is planned to complete surveys in this drainage.

RECOMMENDATIONS

1. To continue inventory and catalog surveys on lakes and streams in the Chandalar River drainage.
2. To complete a report on the sport fishery resources of the Chandalar River drainage.

OBJECTIVES

1. To review and utilize existing data on sport fish and sport fish waters of the Chandalar River drainage.
2. To determine the environmental characteristics and sport fish parameters of waters in the job area.
3. To compile a report on the sport fish and sport fish water in the Chandalar River drainage.

TECHNIQUES USED

Graduated mesh monofilament gill nets 125' x 6' made from five panels with mesh sizes varying from 1/2" to 2 1/2" bar measure were used to sample the fish populations in lakes. Hook and line or visual observations were used to supplement the net returns.

All fish captured were measured for fork length in inches and for weight in pounds; and a scale or otolith was taken for future age determination.

Water analyses were conducted on surface samples. Chemical analysis was done with a Hach model AL-36-WR kit. Water chemistry parameters measured include: (pH), methyl orange (total) alkalinity (MOA), and hardness. A Lowrance echo sounder was used to determine or verify water depths.

Surface acreages were determined with a polar planimeter from 1:250,000 scale topographic maps.

Temperature profiles were taken using a remote sensor thermometer. Visibility measurements were taken using a standard Secchi disc.

INTRODUCTION

The area of study encompasses the entire Chandalar River drainage (Fig. 1 and 2). There has been very little survey work done in this area in the past. The work that has been done is being compiled and will be included in the job completion report. Two lakes, Big and Twin, are actually contained in the Koyukuk River drainage but were surveyed due to their proximity to the Chandalar region and the Trans Alaska pipeline haul road.

Fish species in this study are listed in Table 1.

Information on past survey work in this area is contained in Federal Aid in Fish Restoration, Project F-5-R-9, Job number 15-A.

FINDINGS

Lake Surveys

Name of Lake: Chandalar Lake
Latitude: 67° 30' *Longitude:* 148° 30'
Surface acres: 5,734
Water Chemistry:

Date: 7-31-75
Water Temp: 58°F
pH: 8.0
M.O. Alkalinity: 86
Total Hardness: 103

River System: Chandalar R.
Elevation: 1,815'
Maximum depth: 115'

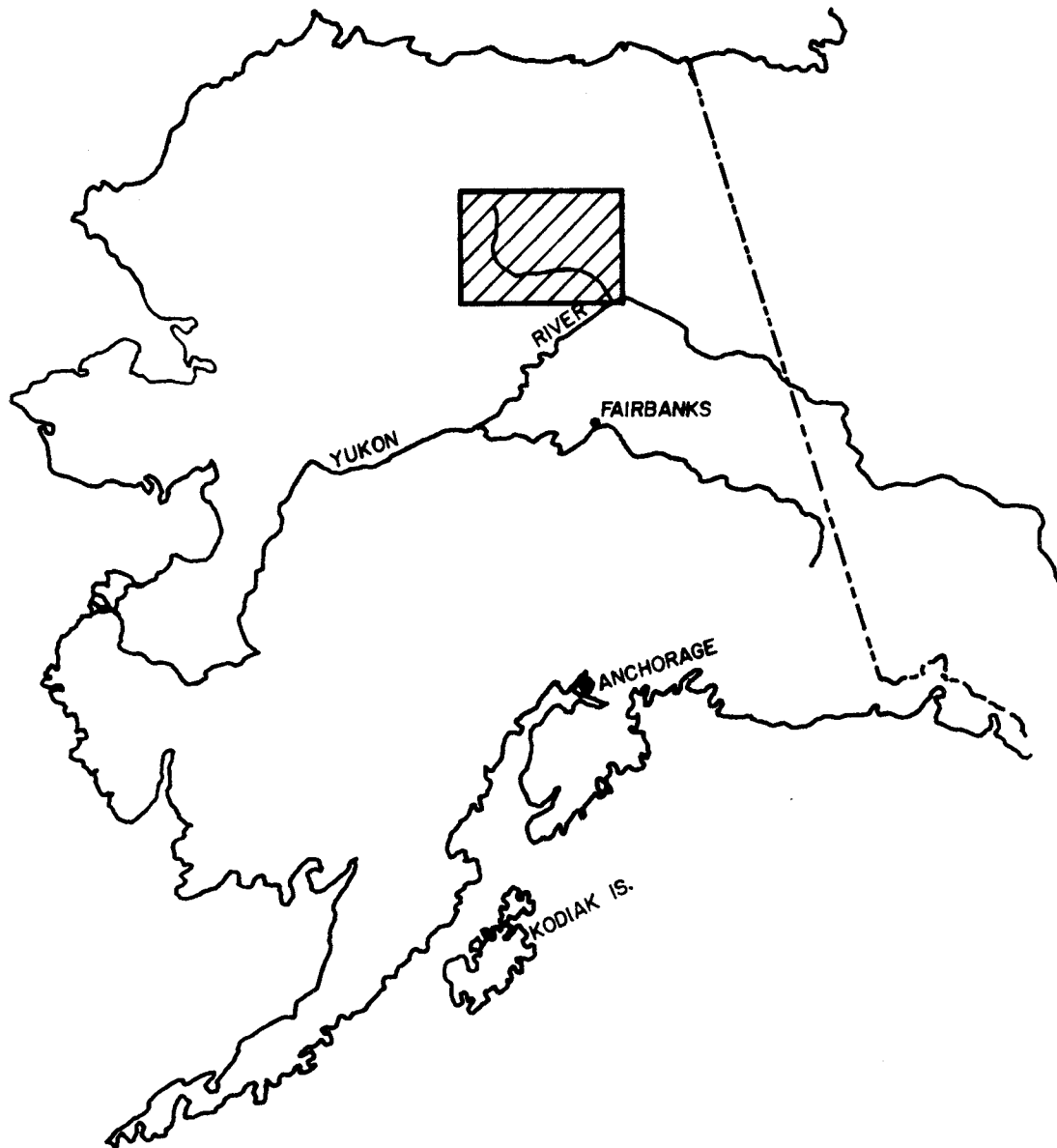


FIGURE 1: Location of Chandalar Drainage

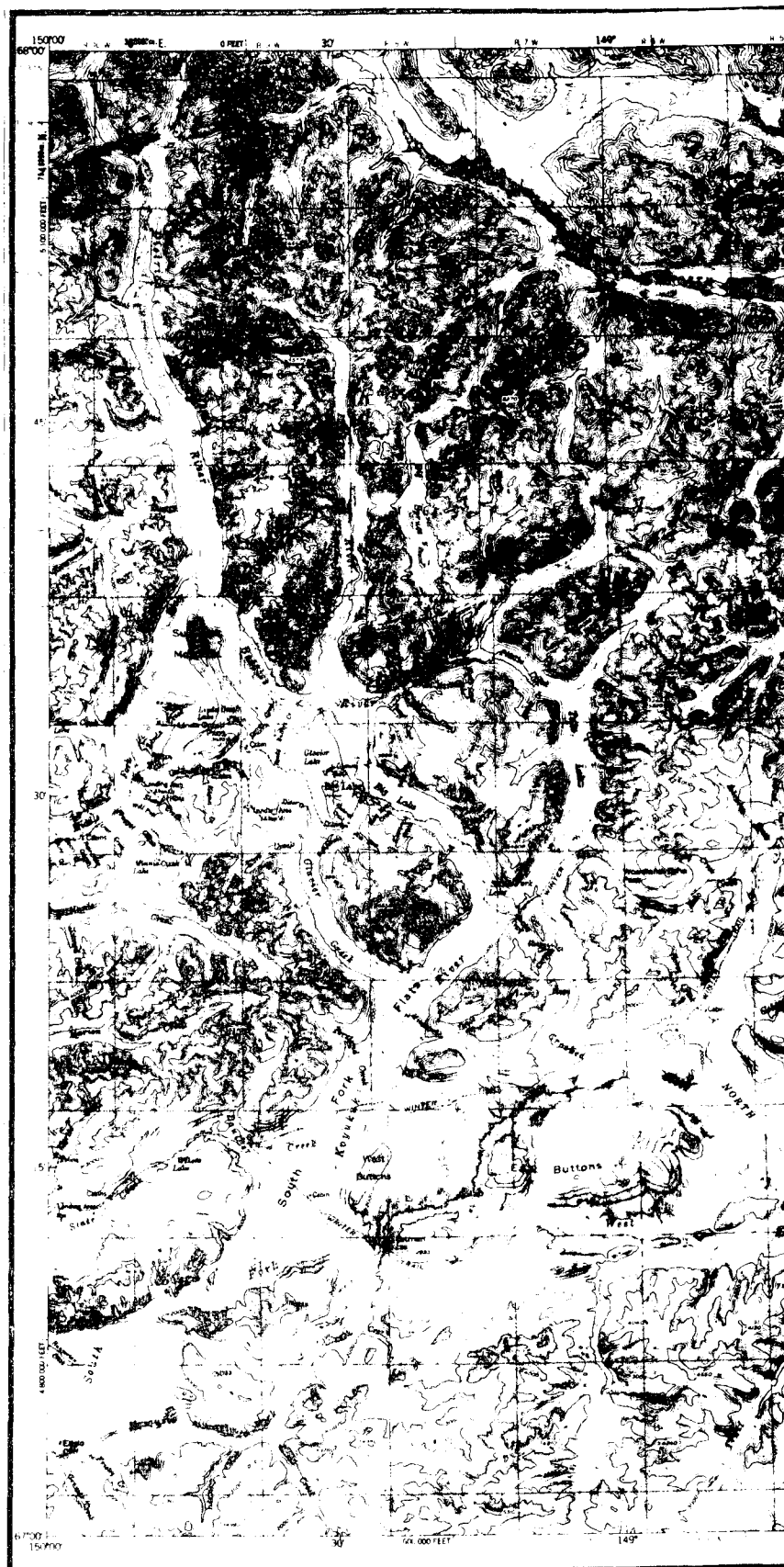


FIGURE 2A: Western Half of Chandalar Drainage



FIGURE 2B: Eastern Half of Chandalar Drainage

Table 1. List of fish commonly found in the study area.

Common Name	Scientific Name	Abbreviation
Round whitefish	<u>Prosopium cylindraceum</u> (Pallas)	RWF
Arctic grayling	<u>Thymallus arcticus</u> (Pallas)	GR
Lake trout	<u>Salvelinus namaycush</u> (Walbaum)	LT
Humpback whitefish	<u>Coregonus pidschian</u> (Gmelin)	HWF
Broad whitefish	<u>Coregonus nasus</u> (Pallas)	RWF
Longnose sucker	<u>Catostomus catostomus</u> (Forster)	LNS
Northern pike	<u>Esox lucius</u> Linnaeus	NP
Least cisco	<u>Coregonus sardinella</u> alenciennes	LCI
Slimy sculpin	<u>Cottus cognatus</u> Richardson	SSC

Fish sampling summary: Chandalar Lake

Date	No.	Species	Length (in)		Weight (lbs)		Fish/ Net hr.
			Range	mean	Range	Mean	
7-29-75	6	RFW	10.8-14.8	13.0	0.25-1.0	0.7	0.22
	1	GR	...	4.3	...	...	0.04
	4	LT	20.1-21.3	20.9	2.5-3.25	2.9	0.18
	1	LT	...	9.3	...	...	...
	7	HWF	9.8-18.5	15.2	0.5-3.0	1.6	0.26
	1	BWF	...	19.7	...	2.0	0.04
7-30-75	3	RWF	4.1-14.4	8.2	...	...	0.03
	14	GR	4.7-16.1	9.3	...	...	0.15
	8	LT	10.8-19.7	15.2	0.25-3.0	1.2	0.08
	26	HWF	4.1-19.3	12.0	0.25-4.0	1.0	0.27
	1	S	...	15.7	...	...	0.01
	3	NP	15.0-27.2	19.6	0.5-5.0	2.2	0.03

Date	No.	Species	Length (in)		Weight (lbs)		Fish/ Net hr.
			Range	Mean	Range	Mean	
7-19-67	3	LT	17.4-23.2	19.8			0.13
	5	LCI	6.1-7.4	6.8			0.21
	5	HWF	6.1-18.5	11.2			0.21
	1	NP	...	30.6			0.04

Sport fishing was good off points of land and near and in the outlet of lake. The lake has light fishing pressure during the open water season and most fishing occurs by the airstrip and at the lake outlet. The gravel airstrip is capable of handling large aircraft. Placid Oil Company has camp facilities adjacent to the airstrip and maintains the runway in cooperation with the F.A.A. There are five inlets to the lake, one of these, the North Fork of the Chandalar River, is very silty. The lake is slightly turbid due to the inflow of silt from the North Fork. Visibility at the outlet end of the lake is down to only 10'. The lake has one outlet, the continuation of the North Fork of the Chandalar River. The outlet was fished for about 1/2 mile downstream and yielded good grayling fishing. Lake trout reportedly are caught in the outlet close to the lake.

Chandalar Lake was visited in 1967 by sport fish personnel and their test net results are found in the fish sampling summary below.

<i>Name of Lake:</i> Squaw Lake	<i>River System:</i> Chandalar R.
<i>Latitude:</i> 67° 35' <i>Longitude:</i> 148° 15'	<i>Elevation:</i> Approx. 2,100'
<i>Surface acres:</i> 1,229	<i>Maximum depth:</i> 45'
<i>Water Chemistry:</i>	
<i>Date:</i>	7-31-75
<i>Water Temp:</i>	59°F
<i>pH:</i>	7.8
<i>M.O. Alkalinity:</i>	51
<i>Total Hardness:</i>	86

Fish sampling summary:

Date	No.	Species	Length (in)		Weight (lbs)		Fish/ Net hr
			Range	Mean	Range	Mean	
8-01-75	9	HWF	16.7-19.3	17.6	2.1-3.4	2.6	0.38
		SSC	(visually observed)				
1967	3	LT	18.0-23.5	21.0	1.7-4.2	3.0	*
	5	NP	24.0-36.0	29.9	3.1-10.7	7.1	*
	22	GR	6.6-14.2	10.2	...	...	*

* These fish were caught on hook and line.

Squaw Lake flows into the North Fork of the Chandalar River approximately 9 miles North of Chandalar Lake. The lake was slightly turbid at survey time with a visibility down to 16'. The lake has three inlets and one outlet. There is an airstrip close to the lake but it apparently is private and used in conjunction with mining activities in the hills surrounding the lake. Sport fishing at the time of survey yielded no fish.

<i>Name of Lake:</i> Ackerman Lake	<i>River System:</i> Chandalar R.
<i>Latitude:</i> 67° 32' <i>Longitude:</i> 147° 32'	<i>Elevation:</i> Approx. 1,700'
<i>Surface acres:</i> 1,843	<i>Maximum depth:</i> 60'
<i>Water Chemistry:</i>	
<i>Date:</i>	7-30-75
<i>Water Temp:</i>	62°F
<i>pH:</i>	8.5
<i>M.O. Alkalinity:</i>	68
<i>Total Hardness:</i>	86

Fish sampling summary:

Date	No.	Species	Length (in)		Weight (lbs)		Fish/ Net hr
			Range	Mean	Range	Mean	
7-31-75	8	RWF	15.4-18.7	16.9	1.0-2.5	1.6	0.27
	5	RWF	5.1-7.1	5.6	...	...	...
	11	GR	4.3-12.6	8.3	...	...	0.23
	5	LT	15.7-17.7	16.5	...	...	0.10
		HWF	(visually observed)				

Ackerman Lake sits on the divide between the Middle Fork and the East Fork of the Chandalar River. Fish species include round whitefish, grayling, lake trout, and humpback whitefish. Sport fishing with hook and line from shore yielded no fish. There are no inlets in Ackerman Lake and there is one outlet that flows into the Middle Fork of the Chandalar River. There is very light fishing pressure on Ackerman Lake. Ackerman is a fairly clear lake with visibility down to 30'.

Name of Lake: Vunittsieh Lake
Latitude: 67°32'30" Longitude: 147°24'
Surface acres: 614
Water Chemistry:

River System: Chandalar R.
Elevation: Approx. 1,700'
Maximum depth: 65'

Date: 7-30-75
Water Temp: 65°F
pH: 8.0
M.O. Alkalinity: 68
Total Hardness: 68

Fish sampling summary:

Date	No.	Species	Length (in)		Weight (lbs)		Fish/ Net hr
			Range	Mean	Range	Mean	
7-31-75	3	NP	15.4-32.0	21.3	1.0-7.0	3.0	0.06

Sport fishing from shore yielded no fish at the time of survey. Vunittsieh Lake sits on the divide between the East Fork and the North Fork of the Chandalar River. There are no inlets and the outlet stream flows into the East Fork. This is a very scenic lake with a very sculptured shoreline. Only northern pike were captured during gill netting but further work should be done to determine if other fish species inhabit the lake. The lake has a visibility to 17'.

Name of Lake: Big Lake

Latitude: 67° 30' Longitude: 149° 26' 30"

Surface acres: 2,253

Water Chemistry:

Date: 8-1-75

Water Temp: 63°F

pH: 8.5

M.O. Alkalinity: 120

Total Hardness: 137

River System: Koyukuk

Elevation: 1,710'

Maximum depth: 67'

Fish sampling summary:

Date	No.	Species	Length (in)		Weight (lbs)		Fish/ Net hr
			Range	Mean	Range	Mean	
8-01-75	1	LT	...	12.8	...	2.0	0.02
	3	LCI	10.6-11.2	10.9	0.5 -0.6	0.5	0.06
	7	NP	14.0-28.7	23.1	0.75-6.5	3.9	0.15

This very scenic lake is the closest of those surveyed to the Trans Alaska Pipeline haul road but, according to locals, there has been no significant increase in fishing pressure on this very productive lake. Sport fishing pressure remains light and a small, one family subsistence fishery occurs. The lake had visibility down to 24' and has six inlets and one outlet to the Koyukuk River via the Bettles River. Sport fishing from the floats of the survey plane at the time of survey yielded no fish.

Name of Lake: Twin Lakes

Latitude: 67° 30' Longitude: 149° 04'

Surface acres: 2,355 (Both lakes combined)

Water Chemistry:

Date: 7-31-75

pH: 7.8

M.O. Alkalinity: 51

Total Hardness: 68

River System: Koyukuk R.

Elevation:

Northernmost L.=2,096'

Southernmost L.=2,105'

Maximum depth:

Southernmost L.=150'

Fish sampling summary:

Date	No.	Species	Length (in)		Weight (lbs)		Fish/ Net hr
			Range	Mean	Range	Mean	
8-01-75	1	GR	...	12.4	...	0.75	0.02
	6	RWF	5.9-14.9	12.3	0.1-1.5	0.9	0.12
	6	LT	15.7-32.6	22.3	1.4-15.5	5.6	0.12

These very scenic lakes are connected by an active creek channel. Only the southernmost lake was surveyed, but due to the creek connection it was assumed both lakes have comparable fish populations. The lake drops off to 90' just a few feet from shore and a maximum depth of 150' was recorded. The lakes receive light sport fishing pressure and sport fishing appears to be good to excellent. No lake trout were caught on hook and line but four grayling were caught soon after fishing began. These grayling ranged in length from 11.8" to 15.7" with a mean of 13.3". They ranged in weight from 0.25 lbs. to 1.25 lbs. with a mean of 0.6 lbs. Gill netting produced six lake trout averaging 5.6 lbs. along with grayling and round whitefish. It is recommended that more intensive study be done on these lakes in the future.

Stream Surveys

Name of Stream: North Fork of Chandalar R. River System: Chandalar R.
(outlet of Chandalar L.)

Latitude: 67° 28' Longitude: 148° 39' Average depth: 4'-5'

Water Chemistry:

Date: 7-29-75
Water Temp: 58°F
pH: 8.0
M.O. Alkalinity: 86
Total Hardness: 103

Fish sampling summary:

Grayling fishing was excellent in the outlet stream of Chandalar Lake with a catch rate of five grayling per hour. These grayling ranged in length from 9.3" to 12.4" with a mean of 11". Lake trout are also reportedly caught in the outlet. The area within 1/2 mile from Chandalar Lake is the section of stream fished by sport fishermen. The outlet is very clear and has many pools and riffles and it averages 50'-60' in width and has a 4'-5' average depth.

Name of Stream: North Fork of Chandalar R. River System: Chandalar R.
(inlet of Chandalar L.)

Latitude: 67° 33' Longitude: 148° 29' Maximum depth: 10'

Water Chemistry:

Date: 7-29-75
pH: 8.0
M.O. Alkalinity: 103
Total Hardness: 137

Fish sampling summary:

No fishing was attempted in this very silty inlet stream to Chandalar Lake. The average width of this stream is 50' and flow is approximately 1 cfs. The deepest channel had 10' of depth.

LITERATURE CITED

Roguski, E. A., and E. C Spetz. 1968. Inventory and cataloging of the sport fish and sport fish waters in the Interior of Alaska. Alaska Department of Fish and Game. Annual Report of Progress. 1967-1968. Project No. F-5-R-9. 9(15-A):265-285.

Prepared by:

Michael J. Kramer
Fishery Biologist

Approved by:

s/W. Michael Kaill, Chief
Sport Fish Research

s/Rupert E. Andrews, Director
Sport Fish Division